

## **Polyolefin membrane with integrally asymmetrical structure and process for producing such a membrane**

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### **Abstract:**

Process for producing an integrally asymmetrical hydrophobic polyolefinic membrane with a sponge-like, open-pored, microporous support structure and a separation layer with a denser structure, using a thermally induced liquid-liquid phase separation process. A solution of at least one polyolefin is extruded to form a shaped object. The solvent used is one for which the demixing temperature of a solution of 25% by weight of the polyolefin in this solvent is 10 to 70°C above the solidification temperature. After leaving the die, the shaped object is cooled using a liquid cooling medium that does not dissolve the polymer up to the die temperature, until the phase separation and solidification of the high-polymer-content phase take place. The integrally asymmetrical membrane producible in this manner has a porosity of greater than 30% to 75% by volume, a sponge-like, open-pored, microporous support layer without macrovoids and with on average isotropic pores, and on at least one of its surfaces a separation layer with pores <100 nm, if any. The membrane is preferably used for gas separation or gas transfer processes, in particular for oxygenation of blood.